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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,065	06/15/2005	Teodor Aastrup	69501-79362	4263
26288	7590	07/21/2010	EXAMINER	
Aibihns.Zacco AB			HYUN, PAUL SANG HWA	
P.O. Box 5581			ART UNIT	
Valhallavagen 117			PAPER NUMBER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,065	Applicant(s) AASTRUP ET AL.	
	Examiner PAUL S. HYUN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14,32-38,40,41,43 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4,7,8,14,32-38,40,41,43 and 46 is/are rejected.
- 7) ☒ Claim(s) 5,6 and 9-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendment filed by Applicant on April 30, 2010 has been acknowledged. Claims 2-14, 32-38, 40, 41, 43 and 46 remain pending. Applicant amended claims 13, 32, 38, 39 and 43. Claims 6 and 9-13 were previously indicated as containing allowable subject matter.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **32, 35, 38 and 40** are rejected under 35 U.S.C. 102(b) as being anticipated by Baer et al. (US 5,321,331).

Baer et al. disclose a chemical sensor comprising a first part 16 and a second part 12 (see Fig. 1). The first part comprises a piezoelectric quartz crystal (PQC) 16 and a plurality of electrode fingers disposed on both sides of the PQC wherein the electrodes on the top surface of the QPC generate signals (see lines 35-40, col. 6). The second part comprises a gasket 32 that defines an abutting surface onto which the first part rests. The second part further comprises an inlet channel 44, an outlet channel 46, such that a flow cell 42 is bounded by the gasket, the first part and the fluid channels.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **2, 7, 8, 14 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Kösslinger et al. (US 6,196,059 B1).

The invention disclosed by Baer et al. differs from the claimed invention in that Baer et al. do not explicitly disclose a measuring device. In addition, Baer et al. do not disclose that the first part comprises a means for accommodating the PQC. Lastly, Baer et al. do not disclose that the first part and the second part are movable with respect to one another.

Kösslinger et al. disclose a PQC-based chemical sensor similar to the sensor disclosed by Baer et al. (see Fig. 5). The sensor comprises a flow cell 20 comprising an inlet channel and an outlet channel as well as an abutting surface 24 for accommodating a PQC substrate. The PQC substrate and the flow cell are releasably attached to one another. The reference discloses that the modular nature of the sensor enables flexibility in implementing various measurement conditions (see lines 45-68, col. 5). Different measurements can be conducted simply by replacing the PQC substrate. The sensor further comprises a measuring device connected to the electrodes of the PQC for outputting a quantitative value corresponding to the characteristics of the sample liquid (see claim 2). In light of the disclosure of Kösslinger et al., it would have been obvious to one of ordinary skill in the art to provide the Baer et al. sensor with a measuring device that can convert the signals emitted by the electrodes to a value indicative of the characteristics of the sample liquid. It also would have been obvious to one of ordinary skill in the art to make the first part and the second part of the sensor disclosed by Baer et al. separable to facilitate modularity. To facilitate modularity, it would have been obvious to one of ordinary skill in the art to provide a frame that supports the periphery of the PQC disclosed by Baer et al.

Claims **3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Kösslinger et al. as applied to claims 2, 7, 8, 14 and 43 above, and further in view of Ganter (US 4,548,514)..

Neither Baer et al. nor Kösslinger et al. disclose the hardness of the elastic gasket.

Ganter discloses an elastic sealing material in the form of an O-ring having a Shore hardness of the order of 50 to 60 (see lines 1-5, col. 5). The reference discloses that such hardness provides liquid-tight seal while providing flexibility in the form of compression (see line 68, col. 4). In light of the disclosure of Ganter, it would have been obvious to one of ordinary skill in the art to use a material having Shore hardness in the order of 50 to 60 to make the gasket of the modified Baer et al. device.

Claims **33 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Ganter.

Baer et al. do not disclose the hardness of the gasket.

Ganter discloses an elastic sealing material in the form of an O-ring having a Shore hardness of the order of 50 to 60 (see lines 1-5, col. 5). The reference discloses that such hardness provides liquid-tight seal while providing flexibility in the form of compression (see line 68, col. 4). In light of the disclosure of Ganter, it would have been obvious to one of ordinary skill in the art to use a material having Shore hardness in the order of 50 to 60 to make the gasket disclosed by Baer et al.

Claims **36, 37 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Caron et al. (US 5,992,215).

Baer et al. do not disclose the dimensions of the device.

Caron et al. disclose a piezoelectric-based chemical sensor wherein the dimensions of the piezoelectric element ranges from 0.1 mm to 1 mm (see line 31, col. 3). In light of the disclosure of Caron et al., it would have been obvious to one of ordinary skill in the art to dimension the sensor disclosed by Baer et al. such that it can accommodate a piezoelectric element having dimensions between 0.1 and 1 mm. That said, it would have been obvious to one of ordinary skill in the art to provide a gasket having a width between 0.05-1 mm and a thickness between 0.01-0.2 mm.

Claim **41** is rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al. in view of Sheffler (US 4,569,438).

Baer et al. do not disclose the material from which the gasket is made.

Sheffler discloses an elastic gasket for providing a fluid tight seal between a lid and a container wherein the gasket is made from polyurethane (see line 63, col. 4). In light of the disclosure of Sheffler, it would have been obvious to one of ordinary skill in the art to make the gasket disclosed by Baer et al. out of polyurethane.

Allowable Subject Matter

Claims 5, 6 and 9-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Baer et al. and Kösslinger et al. both disclose a piezoelectric-based chemical sensor comprising multiple parts that are assembled together. Both devices comprise a piezoelectric element that is accommodated by a base having fluid channels formed therein. However, neither reference discloses the features recited in the allowable claims that enable actuation of the claimed device between a first position and a second position. Specifically, neither reference discloses a sliding mechanism (claim 5), guide rods (claim 6) or handle-operated threads (claims 9 and 10) that move the base with respect to the piezoelectric element between two positions. In addition, neither reference discloses electrical contact areas as recited in claims 11-13.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but they are moot in view of the new grounds of rejection. The amendment necessitated the new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL S. HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/
Examiner, Art Unit 1797

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797